# Wirewound Resistors, Industrial Power, Tubular, Ribwound (RB), Fixed (RBEF, RBSF)

## FEATURES

- High temperature silicone or vitreous enamel coatings
- Excellent for pulsing applications
- All welded construction
- Designed to meet heavy-duty requirements where space is at a premium
- Hardware mounting options and enclosures available
- Wirewound
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

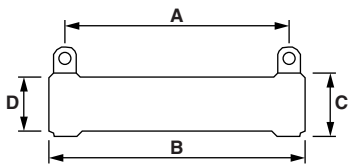
## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING W | RESISTANCE RANGE Ω | TOLERANCE % | TERMINAL STYLE | |
|---|---|---|---|---|---|---|
| | | | | | STANDARD | OPTION |
| RBEF0040 (1) | 9-32-ΩR | 40 | 0.010 to 10.6 | 10 | D | H |
| RBEF0050 (1) | 12-32-ΩR | 50 | 0.020 to 8.2 | 10 | F | H |
| RBEF0075 (1) | 12-48-ΩR | 75 | 0.010 to 19.3 | 10 | F | H |
| RBEF0090 (1) | 9-64-ΩR | 90 | 0.015 to 28.3 | 10 | D | H |
| RBEF0100 (1) | 12-56-ΩR | 100 | 0.012 to 24.5 | 10 | F | H |
| RBEF0110 (1) | 12-64-ΩR | 110 | 0.015 to 30.6 | 10 | F | H |
| RBEF0120 (1) | 12-72-ΩR | 120 | 0.018 to 36.8 | 10 | F | H |
| RBEF0135 (1) | 12-80-ΩR | 135 | 0.021 to 42.9 | 10 | F | H |
| RBEF0150 (1) | 18-64-ΩR | 150 | 0.019 to 44.8 | 10 | F | H |
| RBEF0160 (1) | 12-96-ΩR | 160 | 0.027 to 55.0 | 10 | F | H |
| RBEF0175 (1) | 18-72-ΩR | 175 | 0.023 to 53.7 | 10 | F | H |
| RBEF0180 (1) | 12-104-ΩR | 180 | 0.030 to 61.3 | 10 | F | H |
| RBEF0220 (1) | 18-96-ΩR | 220 | 0.035 to 80.6 | 10 | F | H |
| RBEF0225 (1) | 18-98-ΩR | 225 | 0.036 to 82.8 | 10 | F | H |
| RBEF0240 (1) | 18-104-ΩR | 240 | 0.038 to 89.5 | 10 | F | H |
| RBEF0300 (1) | 18-136-ΩR | 300 | 0.054 to 125 | 10 | F | H |
| RBEF0375 (1) | 18-168-ΩR | 375 | 0.069 to 161 | 10 | F | H |
| RBEF0400 (1) | 26-136-ΩR | 400 | 0.061 to 159 | 10 | G | - |
| RBEF0420 (1) | 18-188-ΩR | 420 | 0.079 to 184 | 10 | F | H |
| RBEF0500 (1) | 26-168-ΩR | 500 | 0.081 to 210 | 10 | G | - |
| RBEF0550 (1) | 26-188-ΩR | 550 | 0.093 to 242 | 10 | G | - |
| RBSF0750 | 40-192-ΩR | 750 | 0.128 to 166 | 10 | G | - |
| RBSF0850 | - | 850 | 0.160 to 400 | 10 | F | G, H |
| RBSF1000 | 40-240-ΩR | 1000 | 0.168 to 217 | 10 | G | - |
| RBSF1100 | - | 1100 | 0.180 to 525 | 10 | G | - |
| RBSF1500 | 40-320-ΩR | 1500 | 0.234 to 303 | 10 | G | - |
| RBSF1700 | - | 1700 | 0.270 to 350 | 10 | G | - |
| RBSF2000 | 52-320-ΩR | 2000 | 0.281 to 391 | 10 | G | - |

**Note**

(1) Vitreous enamel coating is standard (RBEF type), silicone coating is optional (RBSF type).

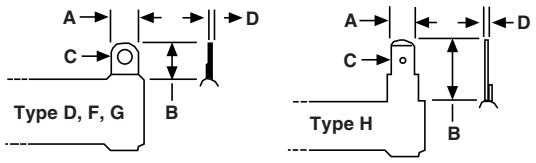
## DIMENSIONS in inches (millimeters)




- For Terminal Data and Mounting Hardware, see www.vishay.com/doc?31811
- For Enclosures and Frames, see www.vishay.com/doc?31810

| GLOBAL MODEL | CORE DIMENSIONS (REF.) | | | A DISTANCE BETWEEN TERMINAL (REF.) | WEIGHT (TYP.) g |
|---|---|---|---|---|---|
| | B LENGTH | C OUTER DIAMETER | D INNER DIAMETER | | |
| RBEF0040 | 2 (50.8) | 0.5625 (14.2875) | 0.3125 (7.9375) | 1.25 (31.75) | 20 |
| RBEF0050 | 2 (50.8) | 0.75 (19.05) | 0.5 (12.7) | 1.15 (29.21) | 30 |
| RBEF0075 | 3 (76.2) | 0.75 (19.05) | 0.5 (12.7) | 2.13 (53.975) | 50 |
| RBEF0090 | 4 (101.6) | 0.5625 (14.2875) | 0.3125 (7.9375) | 3.50 (88.9) | 65 |
| RBEF0100 | 3.5 (88.9) | 0.75 (19.05) | 0.5 (12.7) | 2.63 (66.675) | 58 |
| RBEF0110 | 4 (101.6) | 0.75 (19.05) | 0.5 (12.7) | 3.13 (79.375) | 62 |
| RBEF0120 | 4.5 (114.3) | 0.75 (19.05) | 0.5 (12.7) | 3.63 (92.075) | 68 |
| RBEF0135 | 5 (127) | 0.75 (19.05) | 0.5 (12.7) | 4.13 (104.775) | 75 |
| RBEF0150 | 4 (101.6) | 1.125 (28.575) | 0.75 (19.05) | 3.13 (79.375) | 127 |
| RBEF0160 | 6 (152.4) | 0.75 (19.05) | 0.5 (12.7) | 5.13 (130.175) | 95 |
| RBEF0175 | 4.5 (114.3) | 1.125 (28.575) | 0.75 (19.05) | 3.63 (92.075) | 140 |
| RBEF0180 | 6.5 (165.1) | 0.75 (19.05) | 0.5 (12.7) | 5.63 (142.875) | 100 |
| RBEF0220 | 6 (152.4) | 1.125 (28.575) | 0.75 (19.05) | 5.13 (130.175) | 165 |
| RBEF0225 | 6.125 (155.575) | 1.125 (28.575) | 0.75 (19.05) | 5.25 (133.35) | 175 |
| RBEF0240 | 6.5 (165.1) | 1.125 (28.575) | 0.75 (19.05) | 5.63 (142.875) | 200 |
| RBEF0300 | 8.5 (215.9) | 1.125 (28.575) | 0.75 (19.05) | 7.63 (193.675) | 265 |
| RBEF0375 | 10.5 (266.7) | 1.125 (28.575) | 0.75 (19.05) | 9.63 (244.475) | 300 |
| RBEF0400 | 8.5 (215.9) | 1.625 (41.275) | 1.125 (28.575) | 7.63 (193.675) | 410 |
| RBEF0420 | 11.75 (298.45) | 1.125 (28.575) | 0.75 (19.05) | 10.88 (276.225) | 336 |
| RBEF0500 | 10.5 (266.7) | 1.625 (41.275) | 1.125 (28.575) | 9.00 (228.6) | 525 |
| RBEF0550 | 11.75 (298.45) | 1.625 (41.275) | 1.125 (28.575) | 10.25 (260.35) | 535 |
| RBSF0750 | 12 (304.8) | 2.5 (63.5) | 1.75 (44.45) | 10.50 (266.7) | 1200 |
| RBSF0850 | 25 (635) | 1.125 (28.575) | 0.75 (19.05) | 23.75 (603.25) | 715 |
| RBSF1000 | 15 (381) | 2.5 (63.5) | 1.75 (44.45) | 13.50 (342.9) | 1500 |
| RBSF1100 | 25 (635) | 1.625 (41.275) | 1.125 (28.58) | 23 (584.2) | 1140 |
| RBSF1500 | 20 (508) | 2.5 (63.5) | 1.75 (44.45) | 18.50 (169.9) | 1900 |
| RBSF1700 | 25 (635) | 2.5 (63.5) | 1.75 (44.45) | 23 (584.2) | 2450 |
| RBSF2000 | 20 (508) | 3.25 (82.55) | 1.75 (44.45) | 18.50 (169.9) | 3900 |

## TERMINAL STYLE in inches (millimeters)




| DIMENSIONS | D (1/4" LUG) | F (3/8" LUG) | G (1/2" LUG) | H (1/4" SQC) |
|---|---|---|---|---|
| Width (A) | 0.25 (6.35) | 0.375 (9.525) | 0.5 (12.7) | 0.25 (6.35) |
| Height (B) | 0.5 (12.7) | 0.625 (15.875) | 0.9375 (23.8125) | 0.625 (15.875) |
| Diameter (C) | 0.17 (4.318) | 0.2 (5.08) | 0.26 (6.604) | 0.065 (1.651) |
| Thickness (D) | 0.02 (0.508) | 0.035 (0.889) | 0.046 (1.1684) | 0.032 (0.8128) |

## METRIC OPTIONS AVAILABLE

**Metric Hardware on Terminal Lugs**

Use terminal designation “1” example: RBEF03001R000K**1**B00

**Metric Mounting Hardware**

Vertical mount: use special designation “VM” example: RBEF03001R000K1B**VM**

1 high bracket: use special designation “1A” example: RBEF03001R000K1B**1M**

2 high bracket: use special designation “2A” example: RBEF03001R000K1B**2M**

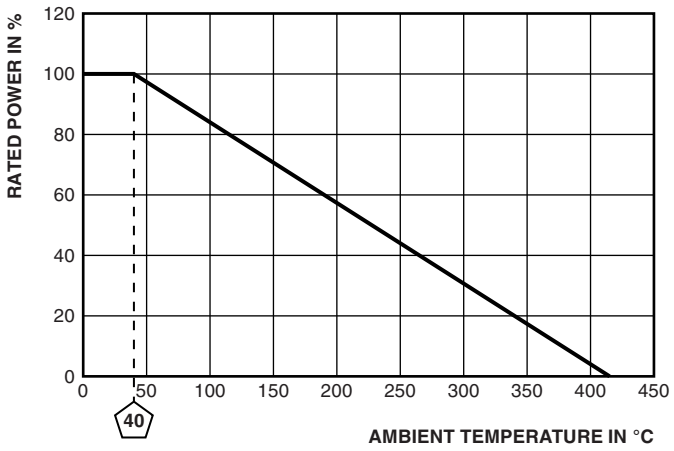
3 high bracket: use special designation “3A” example: RBEF03001R000K1B**3M**

4 high bracket: use special designation “4A” example: RBEF03001R000K1B**4M**

## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|---|---|---|
| Power rating | W | 40 to 200 |
| Resistance range | Ω | 0.01 to 391 |
| Resistance tolerance | % | 10 |
| TCR | ppm/°C | ± 400, ± 180, ± 130, ± 20 (varies by wattage and resistance) |
| Operating temperature | °C | -55 to +415 |
| Temperature rise | °C | 375 above an ambient of 40 °C |
| Maximum altitude | f.a.s.l. (m.a.s.l.) | derate above 4921 f.a.s.l. (1500 m.a.s.l.) |
| Short-term overload (surge) | | 10 x rated power for 5 s |
| Surge windings | | available |
| Maximum working voltage | | $(P \times R)^{1/2}$ |
| Insulation resistance | Ω | 1M |
| Dielectric voltage | $V_{RMS}$ | up to 1500 (upon request) |
| Creepage | inch (mm) | minimum 0.125 (3.175), typical (varies by wattage) |
| Terminal sleeves | | n/a |
| Inductance | µH | 0.1 to 340 (varies by wattage and resistance) |
| Non-inductive winding | | consult factory: www.vishay.com/milwaukee/contact |
| Terminal strength | lb | 10 |
| Electrical or mechanical customization | | available: www.vishay.com/doc?31856 |

## DERATING CURVE




## MATERIAL SPECIFICATIONS

| | |
|---|---|
| Element | copper-nickel, nickel-chrome, iron-chrome-aluminum |
| Core | cordierite, steatite |
| Coating | special high temperature silicone or vitreous enamel |
| Standard terminals | nickel-iron |
| Part marking | value, date code, MRC |

| OPTIONS | EXAMPLE PHOTO | EXAMPLE: 300 W | OPTIONS | EXAMPLE PHOTO | EXAMPLE: 300 W |
|---|---|---|---|---|---|
| Standard "00" option |  | Part number ends with "**00**" example: RBEF0300xxxxxKGB**00** | Thru Bolt "VT" option |  | Part number ends with "**VT**" example: RBEF0300xxxxxKGB**VT** |
| 1 High Bracket "1A" option |  | Part number ends with "**1A**" example: RBEF0300xxxxxKGB**1A** | Clips "CP" option |  | Part number ends with "**CP**" example: RBEF0300xxxxxKGB**CP** |
| 2 High Bracket "2A" option |  | Part number ends with "**2A**" example: RBEF0300xxxxxKGB**2A** | Adjustable |  | Part model starts with "**RBEA**" example: **RBEA**0300xxxxxKFB00 |
| 3 High Bracket "3A" option |  | Part number ends with "**3A**" example: RBEF0300xxxxxKGB**3A** | Enclosures |  | Consult factory for options: vishaymilwaukeeresistor@vishay.com |
| 4 High Bracket "4A" option |  | Part number ends with "**4A**" example: RBEF0300xxxxxKGB**4A** | Electrical customizations (TCR, inductance, etc.) |  | Consult factory for options: vishaymilwaukeeresistor@vishay.com |

## GLOBAL PART NUMBER INFORMATION

**Global Part Numbering example: RBSF150015R00JGB1A (RBSF1500-1A 15 5 % 1/2L B)**

| R | B | S | F | 1 | 5 | 0 | 0 | 1 | 5 | R | 0 | 0 | J | G | B | 1 | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | RESISTANCE VALUE | TOLERANCE | TERMINAL | PACKAGING CODE | SPECIAL |
|---|---|---|---|---|---|
| **RBSF1500** (see "Standard Electrical Specifications" table above for additional P/N's) | **R** = decimal<br>**K** = thousand<br>**R1500** = 0.15 Ω<br>**1K500** = 1.5 kΩ | **J** = ± 5.0 %<br>**K** = ± 10 % | **D** = 1/4" lug<br>**F** = 3/8" lug<br>**G** = 1/2" lug<br>**H** = 1/4" single quick-connect | **B** = bulk | **00** = standard<br>**SW** = surge winding<br>**CP** = push in clips (bulk)<br>**CA** = push in clips (assembled)<br>**VT** = vertical mount<br>**1A** = 1 high bracket zinc plated steel<br>**2A** = 2 high bracket zinc plated steel<br>**3A** = 3 high bracket zinc plated steel<br>**4A** = 4 high bracket zinc plated steel<br><br>**Note**<br>2A, 3A, and 4A assemblies: include identical resistors only wiring to be supplied by customer reference CS series for further customization<br>**Note**<br>3A and 4A limitations: brackets fit 40 W to 550 W RB resistors |

# Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А